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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,661	07/19/2006	Gen Fujii	740756-2993	6545

22204 7590 07/29/2010

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EXAMINER	
HU, SHOUXIANG	
ART UNIT	**PAPER NUMBER**
2811	

MAIL DATE	DELIVERY MODE
07/29/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,661	FUJII, GEN	
	Examiner	Art Unit	
	Shouxiang Hu	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *3,4,6-26,29,30,33 and 34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5,27,28,31 and 32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Newly added claims 23-26, 29-30 and 33-34 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being unreadable on the elected species.

These claims recite the subject matters of a step of removing a pattern in the second region after the step of flowing the part of the composition, or a step of discharging a second composition containing a second pattern formation material over a pattern in the second region to form a wide width pattern after the step of flowing the part of the composition, which are each not directly readable on the elected species of the embodiment of Fig. 1.

And, applicant is reassured that, upon the allowance of any of the elected claim(s) readable on the elected species, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of the allowed claim(s).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 27-28 and 31-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 27 and 31 each recite the term of "the contact angle of the second region to the composition containing the pattern formation material"; however, such recited term lacks a sufficient antecedent basis in each of the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao (JP 11-207959; 08/1999; of record) in view of Sirringhaus (Sirringhaus et al., US 2003/0059987 A1; of record).

Sadao discloses a method for forming a pattern (Figs. 1-18, particularly see Figs. 1c, 8 and 10; also see the English abstract), comprising the steps of: forming a first region (such as 11) and a second region (such as 10); discharging a composition containing a pattern formation material (12) to a region across the second region and the first region; and flowing at least a part of the composition discharged to the first region into the second region, wherein wettability of the first region with respect to the composition is naturally lower than wettability of the second region with respect to the composition.

Although Sadao does not explicitly disclose that the resulting pattern from the discharging and flowing of the composition can be a conductive layer, one of the

ordinary skill in the art would readily recognize that such conductive layer can be desirably formed from such type of inkjet discharging method, so as to form an IC device with reduced cost, as readily evidenced in the prior art such as Sirringhaus (see the conductive layer/pattern 2 and/or 3 in Fig. 7).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the conductive layer/pattern of Sirringhaus into the method of Sadao, so that an inkjet discharging method for forming desired IC devices with reduced cost would be obtained.

Regarding claim 2, it is further noted that at least the method of Sadao further naturally include the steps of: forming selectively a mask over a substrate; forming a first region by using the mask; forming a second region by removing the mask (in manner similar to what is shown in Fig. 14, except that the position of the mask (similar to 107) has to be formed at positions/areas that match the pattern formed in Fig. 1c).

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao in view of Sirringhaus, and further in view of Maikner (US 2002/0017149 A1).

The disclosures of Sadao and Sirringhaus are discussed as applied to claims 1 and 2 above.

Although Sadao and Sirringhaus do not expressly disclose that the first region can be formed with a substance having a fluorocarbon chain, one of the ordinary skill in the art would readily recognize that such substance is well-known in the art for commonly forming a surface region with desired hydrophobic surface area that inherently has low wettability, as readily evidenced in the art such as Maikner

(particularly see [0038]), i.e., such fluorocarbon-chain substance is an art-known common material for forming a surface with low wettability.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the art-known fluorocarbon-chain-based substance, such as that of Maikner, into the method collectively taught above by Sadao and Sirringhaus, so that a method for forming a device with desired low wettability in the required regions therein would be obtained, as it has been held that:

The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp*., 325 U.S. 327, 65 USPQ 297 (1945).

7. Claims 27 and 31, insofar as being in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao (JP 11-207959; 08/1999; of record).

Sadao discloses a method for forming a pattern (Figs. 1-18, particularly see Figs. 1c, 8 and 10; also see the English abstract), comprising the steps of: forming a first region (such as 11) and a second region (such as 10); discharging a composition containing a pattern formation material (12) to a region across the second region and the first region; and flowing at least a part of the composition discharged to the first region into the second region, wherein wettability of the first region with respect to the composition is naturally lower than wettability of the second region with respect to the composition.

Sadao does not expressly disclose that a contact angle of the first region to the composition containing the pattern formation material is larger than a contact angle of the second region to the composition containing the pattern formation material by 30°or more. However, as further evidenced in Sadao (see [0044]), the contact angle is an art-recognized, resulted oriented parameter, subject to routine experimentation and optimization.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to use or develop the method of Sadao with the contact angle of the first region to the composition containing the pattern formation material being larger than the contact angle of the second region to the composition containing the pattern formation material by 26° or 29° (for examples) or more, so that a method for forming fine patterns with improved and/or optimized process and/or quality would be obtained, as it has been held that:

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 31, it is further noted that the above method further naturally include the steps of: forming selectively a mask over a substrate; forming a first region by using the mask; forming a second region by removing the mask (in manner similar to what is shown in Fig. 14, except that the position of the mask (similar to 107) has to be formed at positions/areas that match the pattern formed in Fig. 1c).

8. Claims 28 and 32, insofar as being in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 103(a) as being unpatentable over Sadao in view of Maikner (US 2002/0017149 A1).

The disclosure of Sadao is discussed as applied to claims 27 and 31 above.

Although Sadao does not expressly disclose that the first region can be formed with a substance having a fluorocarbon chain, one of the ordinary skill in the art would readily recognize that such substance is well-known in the art for commonly forming a surface region with desired hydrophobic surface area that inherently has low wettability, as readily evidenced in the art such as Maikner (particularly see [0038]), i.e., such fluorocarbon-chain substance is an art-known common material for forming a surface with low wettability.

Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate the art-known fluorocarbon-chain-based substance, such as that of Maikner, into the method of Sadao, so that a method for forming a device with desired low wettability in the required regions therein would be obtained, as it has been held that:

The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp*., 325 U.S. 327, 65 USPQ 297 (1945).

Response to Arguments

9. Applicant's arguments with respect to the claims reject above have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Friday, 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shouxiang Hu/
Primary Examiner, Art Unit 2811